Both of these bands are seen as fringes on the red edges of stronger bright bands. The chief nebular line λ5007 had become well-marked by June 23.

W. S. ADAMS,
A. H. JOY.

July 15, 1918.

NOTE ON THE DISTANT CLUSTER N. G. C. 6440.

In the April number of these *Publications* Curtis calls attention to the faint object N. G. C. 6440, which is in *Sagittarius* near the medial line of the Milky Way. His first plates indicated that it might be a spiral nebula, unique in its position near the galactic plane. A later plate by Thiele suggested rather that the object is a faint compact cluster. Because of the limited number of globular clusters, and the infrequency of their discovery in recent years, the object has particular significance in the study of magnitudes at Mount Wilson.

That N. G. C. 6440 is a very distant globular system appears certain from photographs with the 60-inch reflector in July of this year. Unlike other globular clusters, however, the nucleus appears distinctly double. Also, when we consider the magnitudes of the stars the angular diameter is larger than usual.

The most luminous stars in the cluster are slightly brighter than the eighteenth photographic magnitude. As they are probably the typical red giants that are found in all other globular clusters so far investigated, the parallax must be between ten and twenty millionths of a second of arc. Despite its low galactic latitude the object stands some ten thousand light-years from the galactic plane and therefore is well outside the equatorial region of the galactic system that is devoid of globular clusters. With a distance of more than 200,000 light-years, this may be the most remote object on record, but further study is necessary before the cluster and its stars can be finally accepted as sufficiently typical to be amenable to present methods of determining distances.

HARLOW SHAPLEY.

THE SPECTROGRAPHIC ORBIT OF THE ALGOL VARIABLE 3.1918 AURIGAE = BOSS 1646.

Five plates of this star, recently announced as an eclipsing variable by Schwab (*A. N.* 4928), were secured with the 18-inch camera. They are sufficient for an approximate determination of the orbit.

The spectrum, which is estimated as type A7, shows the lines of both components of the system well separated at maximum displacement. There is no marked difference in spectral type between the two stars. The lines of the secondary star appear about 0.8 as strong as those of the primary on the plates taken when the primary was receding. On the remaining two plates, taken when the primary star was approaching, the lines of the secondary are weaker on the whole than those of the primary, but the evidence is not so consistent. The lines are of good quality for measurement, showing, as might be expected from the orbit, that the rotation effect plays a minor part.

Altho the type is rather early, estimates made from the spectrum by Adams and Joy give the absolute magnitude as about 1.7 for the components, corresponding to a parallax of 0″.01.

PLATE NO.	DATE	G. M. T.	PHASE	PRIMARY COMPONENT		SECONDARY COMPONENT	
				OBSERVED VELOCITY	O-C	OBSERVED VELOCITY	O-C
6828	1918, April 19	$15^h\ 35^m$	287°	+101 km	−3.1	−133 km	+1.1
6838	20	15 17	68	−110	+3.2	+127	+8.0
6843	21	15 25	211	+ 59	+4.7	− 76	0.0
6875	29	15 51	275	+108	−1.8	−140	+0.9
6885	30	16 13	60	−112	−5.7	+104	−7.7

Upon examination of the plates, it appeared immediately that the period of 1.2624 days given by Schwab should be doubled.

The following elements were determined, assuming the orbit to be circular:

$P = 2.5248$ days
T = J. D. 2421623.3637 G. M. T. (primary minimum)
$e = 0.00$ (assumed)
$\gamma = -5.8 \pm 2.4$ km/sec
$K_1 = 115.6 \pm 1.8$ km/sec
$K_2 = 135.1 \pm 2.2$ km/sec
$a_1 \sin i = 4{,}010{,}000$ km
$a_2 \sin i = 4{,}690{,}000$ km
$m_1 \sin^3 i = 2.2\ \odot$
$m_2 \sin^3 i = 1.9\ \odot$
$\frac{m_2}{m_1} = 0.85$

A. H. Joy.